



(12) **United States Patent**  
**Sandrin et al.**

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(54) **METHOD FOR DETERMINING, IN REAL TIME, THE PROBABILITY THAT TARGET BIOLOGICAL TISSUE IS OPPOSITE AN ULTRASONIC TRANSDUCER**

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(75) Inventors: **Laurent Sandrin**, L'Hay les Roses (FR); **Véronique Miette**, Villejuif (FR); **Jennifer Oudry**, Malakoff (FR); **Stéphane Audiere**, Villejuif (FR); **Yassine Mofid**, Saint Avertin (FR)

(58) **Field of Classification Search**

None  
See application file for complete search history.

(56) **References Cited**

**PUBLICATIONS**

Pauly H., et al., "Mechanism of absorption of ultrasound in liver tissue," J. Acoust. Soc. Am., 1971, 50(2B), pp. 692-699.

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*Primary Examiner* — Long V Le

*Assistant Examiner* — Bradley Impink

(74) *Attorney, Agent, or Firm* — Pillsbury Winthrop Shaw Pittman LLP

(57) **ABSTRACT**

A method for determining, in real time, the probability that target biological tissue is opposite an ultrasonic transducer, the method including: transmitting, via an ultrasonic transducer, an ultrasonic signal into biological tissue; the ultrasonic transducer receiving the transmitted ultrasonic signal which has been backscattered by the biological tissue; calculating at least two instantaneous parameters of the backscattered ultrasonic signal; calculating a predictive value of the presence of an acoustic signature of target biological tissue, the predictive value being calculated via a statistical law using the at least two calculated instantaneous parameters; estimating the probability that the target biological tissue is opposite the ultrasonic transducer, the estimation depending on the calculated predictive value and/or on at least one strength condition based on at least one of the two calculated instantaneous parameters.

**17 Claims, 3 Drawing Sheets**

(73) Assignee: **ECHOSSENS**, Paris (FR)

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